Prevention bulletin
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Rabid Animals and Post-Exposure Prophylaxis

A total of 129 animals tested positive for rabies in Arizona in 2001, compared to 101 in 2000, and 56 for the previous 10 years' annual average. Figure 1 shows the number and distribution of animal rabies cases throughout the State in 1991 and 2001. These cases provide an indication of the primary animal reservoirs for rabies but do not reflect the true extent of rabies infection among wild or domesticated animals due to the passive nature of the surveillance and the lack of animal population estimates.

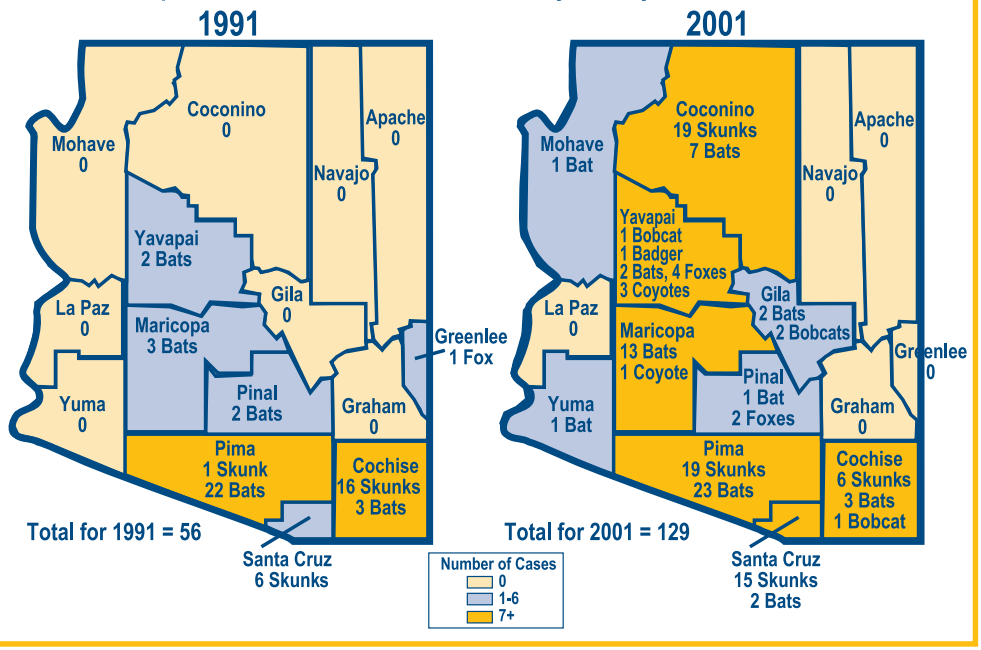
All of the 129 rabid animal cases reported in 2001 were in wildlife. Rabies in skunks and bats accounted for 46% (59) and 43% (55) of all cases, respectively. In addition to a record number of animals testing positive for rabies, 2001 was characterized by three distinct epizootics involving skunks in Pima and Santa Cruz counties, foxes in the Sedona area, and a very unusual rabies epizootic in skunks in the Flagstaff area. The latter represented the first documented rabies cases in a terrestrial animal in the Flagstaff area. Monoclonal antibody typing and genetic sequencing revealed that insectivorous bats were the source of rabies in the Flagstaff skunk population. A major public health initiative was implemented to prevent the permanent establishment of rabies in the skunk population that included a program to trap, vaccinate and release skunks, enhanced rabies surveillance, public education on rabies prevention, pet vaccination campaigns, and rabies quarantine. Over 200 skunks were vaccinated, ear-tagged and released. A total of 19 skunks tested positive for rabies from January through July 2001. No new cases of skunk rabies have since been identified.

The epidemiology of rabies in the United States has changed considerably over the last 50 years. The establishment of effective rabies prevention and control strategies throughout the country have successfully reduced human rabies deaths to a few cases per year. The last human rabies case in Arizona occurred in 1981. The source of rabies also has shifted from domestic animals to wildlife. Successful rabies prevention and control programs continue to rely upon animal control programs, vaccination of companion animals, timely animal rabies surveillance, comprehensive exposure assessment, vaccination of persons at high risk for rabies exposure, well trained public health laboratory staff to accurately test specimens positive for rabies, and

continued on page 6

FIGURE 1

Reported Cases of Rabies in Animals by County, Arizona 1991 & 2001



Arizona Department of Health Services

Visit the ADHS Web site at www.hs.state.az.us

2001- 02 Influenza Season Peaked in February

by Susan Goodykoontz

The 2001/2002 influenza season officially began in Arizona in November 2001 when the first cases of influenza were detected. The number of cases peaked in early February, 2002 and began to decline by mid-March. At its peak, reference laboratories in the state were reporting approximately 40 positive specimens per week. Hospital emergency rooms and primary care clinics also reported increases in the number of patients presenting with influenza-like illness (ILI) during the same period. Several separate influenza outbreaks were reported in Maricopa, Pima, and Yavapai counties. The majority of influenza isolates collected through March were influenza A, and all that were sub-typed were H3N2 *(Fig. 1)*. However, the proportion of influenza B isolates began increasing in March and became the predominant strain by mid-April. Six of the B isolates were typed B/Victoria and all were from children less than 15 years old.

Based on surveillance data, the influenza vaccine administered for the 2001/2002 season should provide good protection against all circulating A influenza viruses but not the B/Victoria strain. The influenza season was relatively mild compared to previous seasons. Influenza in Arizona typically peaks in late December or early January but did not peak this season until February. The season usually lasts through April, although sporadic cases may be reported in May and June.

Nationwide, influenza activity appears to have peaked during the week ending February 23, 2002, which is 4 to 8 weeks later than the previous two seasons. The Centers for Disease Control and Prevention (CDC) have characterized 391 influenza isolates collected in the United States since September 30. The majority (71%) of the isolates were influenza A (H3N2) viruses, which were well matched antigenically by the A (H3N2) strain in the current vaccine. Influenza A (H1) viruses accounted for 4% and influenza B viruses for 25%.

Of the 14 A (H1) viruses characterized by CDC, five were A (H1N1) and nine were A (H1N2). The influenza A (H1) viruses were also similar antigenically to the current vaccine strain, A/New Caledonia/20/99 (H1N1). The newly isolated A (H1N2) viruses appear to have resulted from rearrangement of the genes of currently co-circulating influenza A (H1N1) and A (H3N2) subtypes. The (H1N2) viruses were only identified in Wisconsin, Texas, and Nevada. According to the CDC, the current vaccine should provide good protection against this new strain and no evidence exists that would suggest A (H1N2) viruses are causing more severe illness than other influenza A viruses.

Two antigenically distinct lineages of influenza B viruses are currently circulating worldwide: B/Yamagata/16/88 and B/Victoria/2/87. B/Yamagata viruses have circulated widely since 1990. The B component of the current influenza vaccine belongs to this lineage. However, the B/Victoria viruses had not been identified outside of Asia since 1991. Of the 53 B/Yamagata lineage viruses characterized this season in the United States, 22 were similar to the vaccine strain (B/Sichuan/379/99) but 31 demonstrated reduced titers to ferret antiserum produced against the same strain.

2002-2003 Influenza Vaccine

The emergence of B/Victoria lineage influenza viruses around the world led to the recommendation of including it in the vaccine for the 2002/2003 season. The FDA's Vaccine and Related Biological Products Advisory Committee recommended the following composition for the next season's vaccine: A/New Caledonia/20/99-like (H1N1); A/Moscow/10/99-like (H3N2); and B/Hong Kong/330/2001-like.

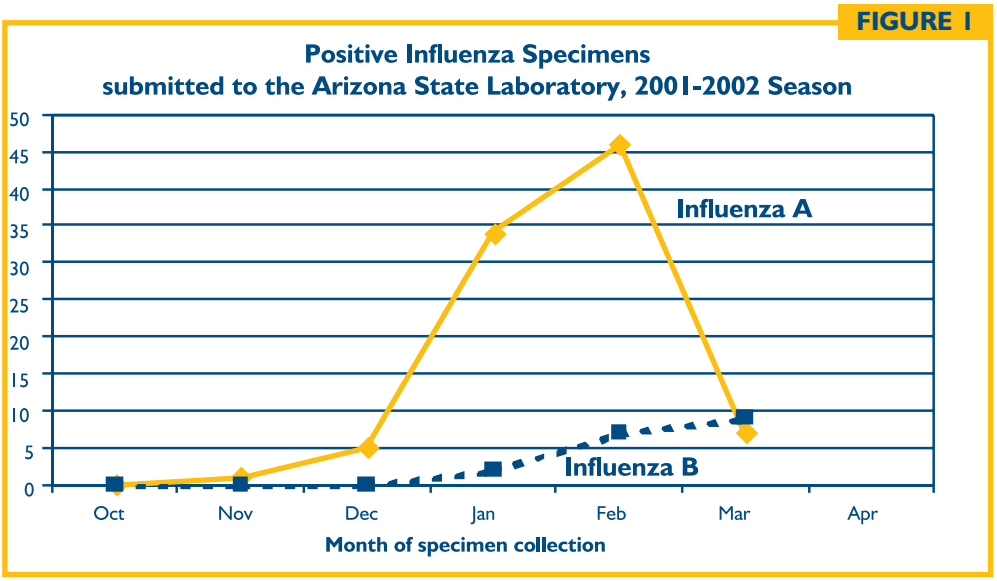
Source: MMWR 2002, 51 (13):276-9. Other flu-related information can be found at www.cdc.gov.

Susan Goodykoontz is an epidemiologist and state flu surveillance coordinator for the Department. She can be reached at 602.230.5949 or sgoody@hs.state.az.us.

REMINDER:

In preparation for the 2002-03 influenza season, vaccine manufacturers encourage providers to submit their influenza vaccine orders as early as possible. The following vaccine manufacturers are currently receiving orders: Aventis, Evans, and Wyeth. Please contact the Arizona Immunization Program Office with any questions regarding influenza vaccine at 602.230.5852. For questions regarding influenza activity in Arizona, please contact the Infectious Disease Epidemiology Section at 602.230.5932.

FIGURE 1

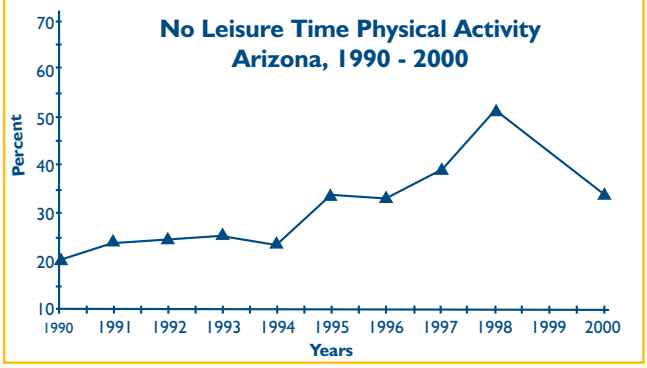


60% of American Adults Not Reaching Recommended Physical Activity Levels

By Tammy Ball, M.S., CHES

Editor's Note: In the November/December 2001 issue of Prevention Bulletin, Dr. Tim Flood presented a perspective of the major causes of death of Arizonans. As a follow-up, Prevention Bulletin will present a series of six articles examining the status of various behavioral risk factors and how these factors may affect the rates of chronic diseases in Arizona. This is the 3rd article in this series.

Figure 1



To encourage Americans to participate in regular physical activity, the Surgeon General has released a report on Physical Activity and Health. The report not only summarized the numerous benefits of regular physical activity, it also recommended an accumulation of 30 minutes or more of moderate-intensity physical activity on most, preferably all, days of the week. After this innovative report was released, many organizations reiterated the benefits of regular physical activity. The National Institutes of Health, the Centers for Disease Control and Prevention, the American College of Sports Medicine, and the American Heart Association have concluded that regular physical activity is associated with reduced rates of heart disease, blood pressure, diabetes, osteoporosis, colon cancer, anxiety, and depression. Physical activity also assists in weight maintenance, aids in the management of osteoarthritis, improves self-esteem, builds morale, and improves overall quality of life.

Despite these benefits, more than 60% of adults in the United States do not achieve the recommended amount of regular physical activity, and 25% are not active at all.[1] Physical inactivity is especially startling in Arizona. According to the Behavioral Risk Factor Survey (BRFS), during the latter half of the 1990's, 38% of adults in Arizona did not engage in any leisure time physical activity. Compared to the first half of the decade this has worsened by nearly 14 percentage points *(Fig. 1)*.

To combat this problem, public health officials now recommend a "lifestyle" approach to physical activity. This approach is designed to inform the public about the health benefits of engaging in other forms of physical activity, not just exercise. Examples of lifestyle activities include; housework, yard work, climbing stairs, and walking briskly. Since 1984, the BRFS has collected data on various health behaviors and has assisted in the planning, implementation, and evaluation of health promotion and disease prevention programs. Although, the BRFS has obtained information on leisure-time physical activity, it did not include "lifestyle" activities. Hopefully, Arizonans may not be as inactive as previously thought.

It is important to include lifestyle activities when quantifying physical activity levels because a large portion of the total amount of physical activity may be attributable to these activities. For example, a recent study found that women spend proportionally more time caring for the home than they do in "leisure" time activities. To better quantify physical activity and obtain data on a wider variety of activities, a new set of BRFS physical activity questions has been developed and will be included in the new 2003 survey. The new survey should aid researchers in assessing the utility of the "lifestyle" approach and offer insight into the actual activity levels of Americans.

In order to obtain better baseline activity data specifically for the state of Arizona, the Arizona Department of Health Services used the new BRFS physical activity questions to conduct a Point-In-Time survey in 2000. In-depth analysis provides information on the proportion of people who engage in no activity at all (inactive), those that engage in some activity, but not enough (active, but insufficient), and those that engage in enough activity to meet the Surgeon General's recommendations (sufficiently active). In contrast to previous BRFS findings that did not include lifestyle activity, 61% of Arizonans engage in enough physical activity to meet the Surgeon General's recommendations *(Fig. 2)*. It is likely that the 2003 BRFS, which will inquire about lifestyle activities, will find similar results.

In summary, Arizonans should engage in a wide-variety of physical activities on a regular basis. "Lifestyle" activities are important in maintaining and improving health. Previous data on physical activity levels did not include lifestyle activities as part of the total amount of physical activity. It is uncertain if the 2003 BRFS questions will drastically change our current understanding of physical activity levels. Preliminary results from the State of Arizona show that Arizonans are more active than previously thought. However, even with the changed definitions, many Arizonans still need to be encouraged to achieve the recommended amount of daily physical activity.

Physical Activity of Arizonans

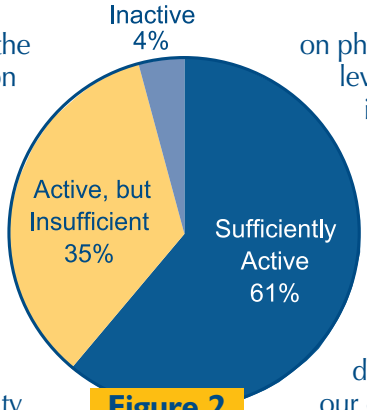


Figure 2

[1] U.S. DHHS. (1996) Physical Activity and Health: A Report of the Surgeon General. Atlanta, GA: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion. 1996.

[2] Brownson, C Ross, Deborah A. Jones, Michael Pratt, Curtis Blanton, and Gregory Heath. Measuring physical activity with the behavioral risk factor surveillance system. Medicine and Science in Sports & Exercise 2000; 32: 1913-1918.

Tammy Ball is the Program Manager for Physical Activity at the Department. She can be reached at 602.364.2402 or tball@hs.state.az.us.

Communicable Disease Summary
January 1, 2001 - December 31, 2001 – Provisional Data

Confirmed Cases Reported in 2001 by County of Residence — Yearly Totals

DISEASE	Apache	Cochise	Coconino	Gila	Graham	Greenlee	La Paz	Maricopa	Mohave	Navajo	Pima	Pinal	Santa Cruz	Yavapai	Yuma	Unknown	2001	2000	1999
AIDS	-	6	6	<5	<5	0	<5	386	8	<5	113	21	<5	13	<5	-	566	491	884
Amebiasis	-	-	2	-	-	-	-	16	-	-	3	-	3	3	1	1	29	39	23
Botulism	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1	0	0
Botulism, Infant	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	2	1	0
Brucellosis	-	-	-	-	-	-	-	4	-	-	1	-	-	-	1	-	6	1	1
Campylobacteriosis	33	8	53	5	4		3	318	9	21	134	10	7	25	4	1	635	619	594
Cholera	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	2
Chlamydia	404	144	403	115	73	9	27	8963	161	469	2699	368	70	150	301	-	14357	12610	12061
Coccidioidomycosis	1	4	9	13	5	1	7	1715	24	5	408	84	2	8	11	5	2302	1917	1812
Colorado Tick Fever	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0
Cryptosporidiosis	-	-	-	-	1	-	-	7	1	-	1	-	-	1	-	-	11	10	16
Dengue	-	-	-	-	-	-	-	1	-	1-	-	-	-	-	-	-	1	3	2
E. coli O157:H7	-	-	-	-	-	-	-	20	2	-	5	-	-	2	1	-	30	56	35
Ehrlichiosis	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	0
Encephalitis, SLE	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1	0	0
Encephalitis, other	-	-	1	-	-	-	-	9	-	1	2	-	1	1	1	-	16	3	8
Giardiasis	1	2	1	1	-	-	-	208	13	-	23	4	2	9	2	1	267	313	255
Gonorrhea	66	15	36	9	5	-	2	2830	14	86	749	63	10	15	23	-	3923	4136	4273
Haemophilus influenzae	7	2	3	1				40	5	1	18	3		1			81	53	63
Hansen Disease	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	0	0
Hanta Pulmonary Syndrome	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1	4	2
Hepatitis A	-	8	4	1	-	-	2	196	7	5	73	12	34	6	60	1	409	467	700
Hepatitis B	-	-	1	2	-	-	-	114	1	2	33	4	-	4	2	1	164	215	138
Hepatitis B (non-acute)[1]	2	24	11	3	8	-	-	868	13	16	164	35	3	17	26	6	1196	1126	1043
Hepatitis C	-	-	-	-	4	-	-	1	-	4	-	-	-	-	-	-	9	21	49
Hepatitis C (non-acute)[2]	50	155	77	36	48	3	32	3431	208	119	943	684	4	278	205	66	6339	6390	4798
Hepatitis D	-	-	-	-	-	-	-	-	-	1	-	3	-	-	1	-	5	19	21
Hepatitis E	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0
Hepatitis Non-A-B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	1	0
Herpes – genital	22	6	21	3	1	3	5	650	27	10	169	38	1	5	14	-	975	1132	1173
HIV infection*	<5	5	<5	-	<5	-	<5	470	<5	-	108	16	<5	6	<5	6	629	561	755
Legionellosis	-	-	2	-	-	-	1	11	1	1	4	-	-	1	-	-	21	11	7
Leptospirosis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0
Listeriosis	-	-	-	-	-	-	-	8	-	-	2	-	-	-	-	-	10	20	19
Lyme Disease	-	-	-	-	-	-	-	2	1	-	-	-	-	-	-	-	3	2	3
Malaria	1	-	1	-	-	-	-	14	-	-	3	-	-	-	-	-	19	11	7
Measles	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1	0	1
Meningitis-Aseptic	-	2	-	-	-	-	1	193	2	-	3	2	1	2	-	-	206	163	155
Meningococcal	-	-	-	-	-	-	-	15	-	1	4	-	-	-	-	-	20	33	44
Mumps	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1	6	1
Pertussis	8	-	-	-	-	-	-	144	21	1	195	7	1	3	1	-	381	108	75
Plague	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	1	0

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DISEASE	Apache	Cochise	Coconino	Gila	Graham	Greenlee	La Paz	Maricopa	Mohave	Navajo	Pima	Pinal	Santa Cruz	Yavapai	Yuma	Unknown	2001	2000	1999
Q Fever	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0
Relapsing Fever, Tick	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	3	0	0
Reye Syndrome	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1	0	0
Rocky Mountain Spotted Fever	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	1
Rubella	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	1	13
Congenital Rubella Syndrome	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	2
Salmonellosis	21	8	32	6	2	1	2	376	10	12	164	37	6	19	20	17	733	784	908
Salmonella paratyphi A	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-	2	4	1
Salmonella paratyphi B	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	3	7	5
Shigellosis	20	9	16	6	-	-	-	254	3	15	94	37	7	3	15	4	483	574	600
Streptococcal-Group A	3	3	6	-	1	-	1	135	6	1	24	7	-	-	-	-	187	235	260
Streptococcal-Group B[3]	-	1	2	-	-	-	-	44	1	1	4	1	1	-	-	-	55	42	43
Streptococcus pneumoniae	13	13	30	7	-	-	-	478	37	19	143	30	5	6	1	-	782	811	820
Syphilis P/S	3	0	0	0	3	0	0	148	0	4	22	0	0	0	0	-	180	189	212
Syphilis-Congenital	1	0	0	0	0	0	0	28	0	1	0	1	0	0	1	-	32	26	21
Tetanus	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1	0	0
Toxic Shock Syndrome	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0
Tuberculosis	15	3	9	3	1			163	6	7	45	11	4		22		289	261	262
Tularemia	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	2
Typhoid Fever	-	-	-	-	-	-	-	1	-	-	1	-	-	-	-	-	2	4	2
Vibrio infection	-	-	1	-	-	-	-	5	-	-	1	-	-	-	-	-	7	3	5
Vancomycin Resistant Enterococci (VRE)	5	9	14	5	2	1	3	610	29	11	118	32	-	14	12	2	867	1084	1024
Yersiniosis	-	-	-	-	-	-	-	2	-	-	2	-	1	-	-	-	5	4	6

Source: ADHS/OIDS/IDES, 04/15/02

Notes: Only incident cases are reported. *Strepococcus pneumoniae* is lab reportable only. *Haemophilus influenzae*, Meningococcal, *Strepococcal Group B and Strepococcus pneumoniae include invasive diseases only. Non-resident cases have been excluded. One case of Salmonella paratyphi C was reported in 1998.*

1 The non-acute hepatitis B case count includes individuals with a positive HBsAg or HbeAg test alone and may include some acutely infected individuals. These counts reflect the year reported or tested and not the date infected. Case counts are not available before 1997.

2 The non-acute hepatitis C case count includes individuals with a positive screening test alone and may include falsely positive individuals. Known risk factors such as intravenous drug use increases the likelihood of these screening tests to be true positives. These counts reflect the year reported or tested and not the date infected. Case counts are not available before 1997.

3 Invasive disease in infants under 30 days of age.

* To protect patient confidentiality, <5 is used to designate a county with fewer than five cases.

Rabid Animals and Post-Exposure Prophylaxis

continued from page 1

post-exposure prophylaxis (PEP) when warranted. Although rabies among humans is rare in the United States, the number of persons receiving post-exposure prophylaxis annually is estimated at 40,000. At least 15 persons in Arizona are known to have received PEP following exposure to laboratory confirmed rabid animals in 2001. However, a recent incident illustrates how a case of rabies in a pet can result in extensive public health efforts to ensure that human disease does not occur. In April, over 70 persons were identified as having a significant exposure to a puppy that was part of an adoption fair at a pet store in Tucson. The puppy became ill a few days after the adoption fair and tested positive for rabies. All persons with significant exposure were started on PEP. Although the cost varies, a course of rabies immunoglobulins and five doses of vaccine given over a four-week period can easily exceed $1,500. Testing animals for rabies when warranted can prevent unnecessary PEP if the animal tests negative for rabies.

Rabies virus transmission only occurs when the virus is introduced into open wounds or mucous membranes through a bite or direct contact with virus-containing saliva. However, unrecognized exposure to rabies, particularly bat-associated variants, continues to pose a challenge to the prevention of rabies in humans. The majority of recent human rabies cases in the United States did not report a known history of an animal bite. Physicians should evaluate each potential exposure to rabies and, if necessary, consult with county and state public health officials for assistance in making an informed exposure assessment. For more information contact the Arizona Department of Health Services at 602.230.5820.

Welcome

Kip Beardsley, M.P.H. is the new Office Chief for the Department of Health Services' HIV Program. Kip was formerly the Project Coordinator for the Southwest Washington Health District Gay Health Promotion Program in Vancouver, Washington. Prior to his two years in that position, Kip was with the State of Oregon Health Division Drug Assistance Program.

Kip has a Masters degree in Public Health from the University of Washington and an undergraduate degree from Portland State University.

The mission of the Office is to prevent further transmission of all STDs, including HIV, and to increase the quality of life among those already infected through education, prevention, monitoring, treatment and services. The office conducts disease surveillance activities, primary and secondary prevention initiatives and public health research.

Kip can be reached at 602.230.5822 or kbeards@hs.state.az.us.

Prevention bulletin

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